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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MICHAEL SCOTT PRODOEHL
and KENNETH DOUGLAS VINSON

Appeal 2009-0854
Application 10/782,029
Technology Center 1700

Decided: ¹ April 29, 2009

Before CHARLES F. WARREN, PETER F. KRATZ, and
LINDA M. GAUDETTE, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

DECISION ON APPEAL

Applicants appeal to the Board from the decision of the Primary
Examiner finally rejecting claims 1, 2, 4, 6, 10 through 14, 16, 17, 19, 21,

¹ The two month time period for filing an appeal or commencing a civil action specified in 37 C.F.R. § 1.304, begins to run from the “Decided” date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

22, and 25 through 30 in the Office Action mailed October 30, 2006.

35 U.S.C. §§ 6 and 134(a) (2002); 37 C.F.R. § 41.31(a) (2007).

We affirm the decision of the Primary Examiner.

Claim 1 illustrates Appellants' invention of a single or multi-ply sanitary tissue product and is representative of the claims on appeal:

1. A single- or multi-ply sanitary tissue product having a basis weight of from about 10 g/m^2 to about 120 g/m^2 , wherein the sanitary tissue product comprises a differential density fibrous structure comprising low fiber density pillow regions and high fiber density knuckle regions and a structural aspect ratio of greater than 1.5 wherein the fibrous structure exhibits a modulus to tensile strength ratio as defined below:

$$\frac{\text{ARD}_{90}\text{M}}{\text{ARD}_{90}\text{T}} < 15$$

wherein ARD_{90}M is the modulus measured perpendicular to the direction the structural aspect ratio is measured; and ARD_{90}T is the tensile strength measured perpendicular to the direction the structural aspect ratio is measured.

The Examiner relies upon the evidence in these references (Ans. 3):²

Trokhan	US 4,637,859	Jan. 20, 1987
Phan	US 6,328,850 B1	Dec. 11, 2001

Appellants request review of the grounds of rejection under 35 U.S.C. § 103(a) advanced on appeal by the Examiner: claims 1, 2, 4, 6, 10 through 12, 16, 17, 19, 21, 22, 25 through 27, and 30 over Trokhan;³ and claims 13, 14, 28, and 29 over Trokhan, as applied to the above claims, further in view of Phan. App. Br. 3; Ans. 3 and 4.

² We consider the Appeal Brief filed July 5, 2007, and the Examiner's Answer mailed October 15, 2007.

³ The Examiner withdrew the ground of rejection of these claims under 35 U.S.C. § 102(b), which is a separate ground of rejection. *See, e.g., In re Spada*, 911 F.2d 705, 707 n.3 (Fed. Cir. 1990).

Appellants separately group the claims in the first ground of rejection. App. Br. 3. However, Appellants rely on separate arguments only for claims 1, 2, and 10 through 12, and claims 16, 17, 25 through 27, and 30. Appellants apply the same arguments to the other groups of claims addressed in this ground and note the difference in scope of the same limitation in each group. App. Br. 3 and 4-6. Appellants rely on the same arguments based on Trokhan advanced with respect to the first ground of rejection with respect to each of the claim groupings in the second ground of rejection. App. Br. 3 and 6-7; *see also* Ans. 6. Thus, we decide this appeal based on independent claims 1 and 16. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

Issue

The dispositive issue in this appeal is whether Appellants have shown that the evidence in Trokhan does not support the Examiner's conclusion of *prima facie* obviousness.

Claim Interpretation

In order to consider the issue raised in this appeal, we first interpret independent claims 1 and 16 by giving the terms thereof the broadest reasonable interpretation in their ordinary usage in context as they would be understood by one of ordinary skill in the art in light of the written description in the Specification unless another meaning is intended by Appellants as established therein, and without reading into the claim any disclosed limitation or particular embodiment. *See, e.g., In re Icon Health and Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007); *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004), and cases cited therein; *In re Morris*, 127 F.3d 1048, 1054-55 (Fed. Cir. 1997).

We determine claim 1 specifies, in pertinent part, as illustrated by the embodiments depicted in Specification Figures 1 and 2a-b, a tissue product comprising at least a differential density fibrous structure comprising at least low fiber density pillow regions A and B and high fiber density knuckle regions C, and a structural aspect ratio of greater than 1.5.

With respect to the manner in which the “structural aspect ratio” is determined, we find Appellants disclose in the Specification:

“Aspect Ratio” as used herein means a ratio of length to width within discontinuous regions of the differential density structures of the present invention. More specifically, the “Structural Aspect Ratio” is determined by averaging the aspect ratio of all of the individual discontinuous regions within a repeating unit, wherein the direction in which the structural aspect ratio is measured is selected in order to achieve a maximum in its absolute value.

Spec. 4:30-34. Specification Figure 1 illustrates a pattern in which “low density shape types ‘A’ and ‘B’ [are] dispersed within a continuous, high density field ‘C’.” Spec. 10:20-23. The “aspect ratio” calculated in parallel directions “X” and in parallel directions “orthogonal to X” is illustrated in Specification Figures 2a-b. Spec. 10:24 to 11:13. “[T]he structural aspect ratio is determined by repeating this calculation for each ‘X,’ trying every direction 180° around the structure, until a maximum is found,” which “maximum is the structural aspect ratio and its direction is the structural aspect ratio direction.” Spec. 11:14-16. The aspect ratio can be calculated in this manner from the means used “to impart the structural features to the product. Spec. 11:20-22.

Thus, we determine claim 1 specifies the largest structural aspect ratio of the discontinuous regions, whether low fiber density pillow regions A and B or high fiber density knuckle regions C must be greater than 1.5.

We determine that claim 16 specifies, in pertinent part, a tissue product comprising at least a differential density fibrous structure having at least an average fiber length, L of less than 2 mm, and further comprising at least low fiber density pillow regions A and B and high fiber density knuckle regions C and “a maximum stretch of less than about 15%” in any direction.

The fibrous structure of claim 1 exhibits the specified modulus to tensile strength ratio, wherein the modulus and the tensile strength are measured perpendicular to the direction the structural aspect ratio is measured. The fibrous structure of claim 16 exhibits the specified modulus to tensile strength ratio, wherein the modulus and the tensile strength are measured in the direction of maximum stretch. Neither claims 1 and 16 nor the Specification specify the shape or dimensions for the pillow and knuckle regions or the fibers used to form the paper products. *See generally* Spec.

Appellants characterize the claimed tissue products as having a fibrous structure. . . [which] exhibits a high tensile strength and surprisingly a low modulus. The low modulus of the fibrous structures of the present invention provides the fibrous structures with a softness that is greater than conventional fibrous structures and/or higher tensile strength fibrous structures with a softness that is equal to or greater than the softness of conventional fibrous structures.

Spec. 2:5-9.

Findings of Fact

We find Trokhan would have disclosed to one of ordinary skill in this art, as illustrated by, among other things, deflection plate embodiments depicted in Figures 2 and 10, a method of making a tissue product having a differential density fibrous structure having low density “domes,” formed by deflection conduits 22, and a “high density network region,” formed by continuous network surface 23 of deflector member 19. Trokhan, e.g., col. 1, l. 63 to col. 2, l. 16, col. 2, ll. 25-47, col. 6, ll. 3-10, col. 7, ll. 1-13 and 37-68, col. 8, ll. 5-68, and col. 18, l. 34 to col. 21, l. 18.

Appellants admit that processes for making pattern densified fibrous structures as claimed are well known as exemplified by, among other things, Trokhan. Spec. 8:14-21.

Trokhan discloses that in the “preferred geometry” of openings 29 of conduits 22 that are separated by network surface 23 in the pattern illustrated in Figure 10, opening 29 has point-to-point height “f” and width between flats “e.” In an especially preferred embodiment for use with northern softwood Kraft [(NSK)] furnishes,” “e” is 1.27 mm and “f” is 1.62 mm. Trokhan col. 8, ll. 12-37.

Appellants determine an aspect ratio of 1.28 for conduits 22 of Trokhan Figure 10 using the “formula: dimension f/dimension e.” App. Br. 4. The Examiner does not dispute the calculation. *See generally* Ans.

Trokhan discloses it is the relationship of the geometries of openings 29 of conduits 22 and of network surface 23 as well as the interaction between these patterns of deflection member 19 and various fiber parameters, “including length, shape, and orientation in the embryonic web” that is deflected by deflection member 19, which influence the properties of

the paper products prepared by the process, which exhibit, among other things, good softness. Trokhan, e.g., col. 1, l. 63 to col. 2, l. 16, col. 9, l. 37 to col. 10, l. 64, col. 18, ll. 38-60, and col. 19, ll. 23-66.

Trokhan's illustrative Example uses NSK fibers with the deflection member illustrated in Figure 10, to prepare four paper products exhibiting maximum stretch of 30, 34, 35, and 32 percent, respectively, in the machine direction. Trokhan col. 21, l. 34 to col. 22, l. 2, and Tables I-III.

A discussion of Phan is not necessary to our decision.⁴

Discussion

We considered the record as a whole in light of Appellants' arguments with respect to the teachings of Trokhan. The Examiner does not disagree with Appellants' argument that the embodiment illustrated by Trokhan's Figure 10 has the aspect ratio 1.28, and thus does not meet this limitation in claim 1.⁵ App. Br. 4-5, 5, and 7; Ans. 5. The Examiner further does not disagree with Appellants' argument that the maximum stretch exhibited by Trokhan's four embodiments illustrated in the Example does not meet this limitation in claim 16. App. Br. 5 and 6; Ans. 5-6.

⁴ We have not considered United States Patent 6,177,370, which is not of record, and the Horn publication, of record, cited by the Examiner to show fact. Ans. 3. In this respect, we note Appellants admit that it is known the over/under for short and long paper making fibers is 1.5 mm, with NSK fibers representative of the latter. Spec. 12:3-19.

⁵ We determine Appellants' method of calculation does not reflect the method disclosed in the Specification for determining the structural aspect ratio as claimed. *See above* pp. 4 and 6. We have not undertaken calculations in accordance with the disclosed method since the same is not necessary to our decision.

Thus, while the Examiner agrees with Appellants that on this record, it does not appear these paper product embodiments of Trokhan anticipate the claimed paper products encompassed by claims 1 and 16, the Examiner points out that these claims are also rejected under § 103(a). Ans. 5-6; *see above* note 3. In this respect, the Examiner points to the similarities between the claimed paper products and the teachings of Trokhan. The Examiner further points out that Trokhan teaches the properties of the paper products can be “controlled by varying the pattern and surface geometry of the [deflection] member on which the tissue is produced” which would have led one of ordinary skill in this art to optimize properties by selecting appropriate pattern and geometries by routine experimentation. Ans. 3-6. Appellants submit that Trokhan fails to teach or suggest a structural aspect ratio or a maximum stretch other than that exhibited in the disclosed embodiments. App. Br. 4-7.

On this record, we agree with the Examiner. Appellants have not have shown that the evidence in Trokhan does not support the Examiner’s conclusion of obviousness. Contrary to Appellants’ arguments, Trokhan’s teachings are not limited to the preferred embodiments based on the deflection member illustrated in Trokhan’s Figure 10. *See, e.g., Merck v. Biocraft Labs.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“But in a section 103 inquiry, ‘the fact that a specific [embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.’”) (quoting *In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976). Indeed, there is no disclosure in Trokhan limiting the aspect ratio or the maximum stretch to the values reported in these

embodiments. Thus, we are of the view that one of ordinary skill in this art routinely following the teachings of Trokhan with respect to the formation of the deflection member and the use of fibers, such as NSK, therewith would have reasonably arrived at paper products having softness properties falling within claims 1 and 16 even though Trokhan does not describe such properties using modulus to tensile strength ratios calculated as specified in claims 1 and 16. *See, e.g., In re Skoner*, 517 F.2d 947, 950-51 (CCPA 1975) (“Appellants have chosen to describe their invention in terms of certain physical characteristics . . . Merely choosing to describe their invention in this manner does not render patentable their method which is clearly obvious in view of [the reference].” (citation omitted)).

Accordingly, based on our consideration of the totality of the record before us, we have weighed the evidence of obviousness found in Trokhan alone and as combined with Phan, with Appellants’ countervailing evidence of and argument for nonobviousness and conclude, by a preponderance of the evidence and weight of argument, that the claimed invention encompassed by appealed claims 1, 2, 4, 6, 10 through 14, 16, 17, 19, 21, 22, and 25 through 30 would have been obvious as a matter of law under 35 U.S.C. § 103(a).

The Primary Examiner’s decision is affirmed.

Appeal 2009-0854
Application 10/782,029

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(v).

AFFIRMED

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